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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,290	05/25/2000	James E Carey	1958.2001-000	5934

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EXAMINER	
VO, LILIAN	
ART UNIT	**PAPER NUMBER**
2195	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/578,290	CAREY, JAMES E	
	Examiner	Art Unit	
	Lilian Vo	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 – 44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 – 44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 4, 6 – 13, 15 – 22, 24 – 31 and 33 - 44 are pending. Claims 5, 14, 23 and 32 have been cancelled.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by Achenson et al. (US 6,477,586).

4. Regarding **claim 6**, Achenson discloses in a multithreaded computing environment, a method of processing computing tasks (abstract), comprising:

defining a plurality of worker threads, each thread capable of processing a task (abstract, col. 2 lines 16 - 19);

defining a plurality of task queues, each task queue capable of queuing a plurality of tasks (abstract, col. 2 lines 20 - 23);

associating each task queue with a single respective worker thread (abstract, col. 2 line 21);

assigning a task to an assigned task queue (col. 5, lines 55 – 64); and

in a worker thread not associated with the assigned task queue, processing the task (col. 5 lines 42 – 45, 60 – 63 and col. 6 lines 64 – col. 7 lines 9).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 4, 7, 10, 13, 15 - 16, 19, 22, 24 - 25, 28, 31, 33, 36, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Achenson et al. (US 6,477,586, hereinafter Achenson), as applied to claim 6 above, in view of Sullivan (US Pat. 5,438,680).

7. Regarding **claim 1**, Achenson discloses in a multithreaded computing environment, a method of processing computing tasks (abstract), comprising:

defining a plurality of worker threads, each thread capable of processing a task (abstract, col. 2 lines 16 - 19);

defining a plurality of task queues, each task queue capable of queuing a plurality of tasks (abstract, col. 2 lines 20 - 23);

associating each task queue with a respective worker thread (abstract, col. 2 line 21); and

from a worker thread, processing a task from a task queue not associated with the thread (col. 5 lines 42 – 45, 60 – 63 and col. 6 lines 64 – col. 7 lines 9).

Achenson discloses of placing tasks in task queue (col. 5, lines 55 – 64) but did not clearly teach the process of assigning a task to a task queue in an essentially random fashion. This feature can be found in Sullivan in which tasks are simply assigned to processors in a generally random fashion (col. 6, lines 35 – 61). It is obvious for one of ordinary skill in the art, at the time the invention was made to incorporate this feature to Achenson to optimize system performance with task assignment.

8. Regarding **claim 4**, as modified Achenson discloses the method of claim 1 further comprising, from a worker thread, processing a task from the associated task queue (Achenson: col. 5 lines 55 – 59, col. 6 lines 53 – 54).

9. Regarding **claim 7**, Achenson discloses of placing tasks in task queue (col. 5, lines 55 – 64) but did not clearly teach the process of selecting an assigned task queue in an essentially random fashion. Nevertheless, this feature can be found in Sullivan in which tasks are simply assigned to processors in a generally random fashion (col. 6, lines 35 – 61). It is obvious for one of ordinary skill in the art, at the time the invention was made to incorporate this feature to Achenson to optimize system performance with task assignment.

10. **Claims 10, 13, 15 - 16, 19, 22, 24 - 25, 28, 31, 33, 36, 39 and 40** are rejected on the same ground as stated in claims 1 and 4 above.

11. Claims 2, 3, 8, 9, 11, 12, 17, 18, 20, 21, 26, 27, 29, 30, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Achenson et al. (US 6,477,586) in view of Sullivan (US Pat. 5,438,680) as applied to claims 1, 6, 10, 15, 19, 24, 28 and 33 above, and further in view of Najork et al. (US Pat. 6,377,984, hereinafter Najork).

12. Regarding **claims 2 and 3**, as modified Achenson did not clearly specify the steps of assigning a task comprising selecting an empty task queue and determining whether the selected task queue is in a busy state. Nevertheless, these teaching steps are disclosed in Najork's invention (col. 3, lines 22 – 33). It would have been obvious for one of ordinary skill in the art, at the time the invention was made include Najork's teaching with modified Achenson to better load balancing the tasks by utilizing all of the empty queues while not overloading other busy queues in the system.

13. Claims 8, 9, 11, 12, 17, 18, 20, 21, 26, 27, 29, 30, 34 and 35 are rejected on the same ground as stated in claims 2 and 3 above.

14. Claims 37, 38 and 41 – 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Achenson et al. (US 6,477,586) in view of Sullivan (US Pat. 5,438,680) and further in view of Brenner et al. (US Pat. Application Publication 2003/0225815, hereinafter Brenner).

15. Regarding **claim 37**, Achenson discloses in a multithreaded computing environment, a method of processing computing tasks (abstract), comprising:

defining a plurality of worker threads, each thread capable of processing a task (abstract, col. 2 lines 16 - 19);

defining a plurality of task queues, each task queue capable of queuing a plurality of tasks (col. 2 lines 20 - 23);

associating each task queue with a respective worker thread (col. 2 line 20);

from a worker thread, processing a task from the associated task queue (col. 5 lines 55 – 59, col. 6 lines 53 – 54).

Achenson discloses of placing tasks in task queue (col. 5, lines 55 – 64) but did not clearly teach the additional limitations such as the process of:

assigning a task to a task queue in an essentially random fashion using a random number generator to identify a task queue; and

searching for an empty task queue to store the task if it is determined that the initial task queue is not empty.

Sullivan teaches the concept in which tasks are simply assigned to processors queue in a generally random fashion (col. 6, lines 35 – 61). It is obvious for one of ordinary skill in the art, at the time the invention was made to recognize Sullivan's system inherently use a random generator to randomly select which processor queue for assigning the tasks.

Brenner teaches the concept of placing new thread/process in a run queue associated with an idle processor by searching/scanning through all the nodes (page 3, paragraph 0043, page 6 paragraph 95 and fig. 8: 840 - 860). It would have been obvious to an ordinary of skill in the art

the recognize that when Brenner search through and/or scan the nodes, he inherently teaches the step of determining whether the initial task queue is empty or not before he can determines the next processor is idle (not busy) which implies its queue is empty. Therefore, it would have been obvious for one of an ordinary skill in the art to incorporate Sullivan's teaching to Achenson to optimize system performance with task assignment in a random fashion (Sullivan: col. 6, lines 55 – 61). It is also obvious for one of an ordinary skill in the art, at the time the invention was made to apply Brenner's concept in assigning processes to an empty run queue to Achenson's system so that optimal performance can be achieved with balancing processes among the system run queues.

16. Regarding **claim 42**, Achenson discloses the processing comprises from a worker thread, processing a task from a task queue not associated with the thread (col. 5 lines 42 – 45, 60 – 63 and col. 6 lines 64 – col. 7 lines 9).

17. Claims 38, 41, 43 and 44 are rejected on the same ground as stated in claims 37 and 42 above.

Response to Arguments

18. Applicant's arguments filed 12/26/06 have been fully considered but they are not persuasive for the reasons set forth below.

19. Applicant argues that Achenson does not does not teach or suggest the limitation "from a worker thread, processing a task from a task queue not associated with the thread" (page 12 2nd paragraph), the examiner disagrees. Achenson discloses that every process including process 3 has a pool of worker thread within the process (col. 5 lines 42 – 44). Thus, when a message is transfer to process 3 from process 2A as states in col. 5 lines 60 – 63 and col. 6 line 64 – col. 7 line 9, it suggests and/or indicates that a worker thread within process 3 is processing the message/task from a queue of process 2A. Therefore, a worker thread is processing a message/task from a task queue associated with process 2A and not process 3.

20. Applicant argues that Najork fails to teach or suggest selecting comprises determining whether a selected task queue is in a busy state or making any kind of determination of whether a selected empty queue is in a busy state as recited in claim 3 (page 13 last paragraph – page 14 2nd paragraph), the examiner disagree. When Najork teaches of selecting an empty task queue, he inherently teaches the step of determining whether the selected queue is in a busy state in order to determine that the queue is empty. If a queue is in the busy state, it would not be selected and/or considered as an empty queue.

21. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "how it's invention knows that the queue was empty, or that it's invention knows what is going on inside any queue" (page14 2nd paragraph)) are not recited in the rejected claim(s). Although the claims

are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

22. Applicant argues that Brenner does not teach or suggest of determining that the initial task queue is not empty as recited in claim 37 (page 15 2nd paragraph), the examiner disagrees. Brenner teaches the concept of placing new thread/process in a run queue associated with an idle processor by searching/scanning through all the nodes (page 3, paragraph 0043, page 6 paragraph 95 and fig. 8: 840 - 860). It would have been obvious to an ordinary of skill in the art the recognize that when Brenner search through and/or scan the nodes, he inherently teaches the step of determining whether the initial task queue is empty or not before he can determines that the next processor is idle (not busy) which implies its queue is empty.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilian Vo whose telephone number is 571-272-3774. The examiner can normally be reached on Thursday 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lilian Vo
Examiner
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March 22, 2007

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